Use of

Influenza Rapid Diagnostic Tests

World Health Organization

TDR For research on diseases of poverty

UNICEF • UNDP • World Bank • WHO

Use of Influenza Rapid Diagnostic Tests

World Health Organization

TDR For research on diseases of poverty
UNICEF • UNDP • World Bank • WHO

WHO Library Cataloguing-in-Publication Data

Use of influenza rapid diagnostic tests.

1.Influenza, Human - diagnosis. 2.Influenza A virus - isolation and purification. 3.Influenza B virus - isolation and purification. 4.Diagnostic techniques and procedures. 5.Diagnostic tests, Routine - methods. I.UNICEF/UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases. II.World Health Organization.

ISBN 978 92 4 159928 3 (NLM classification: WC 515)

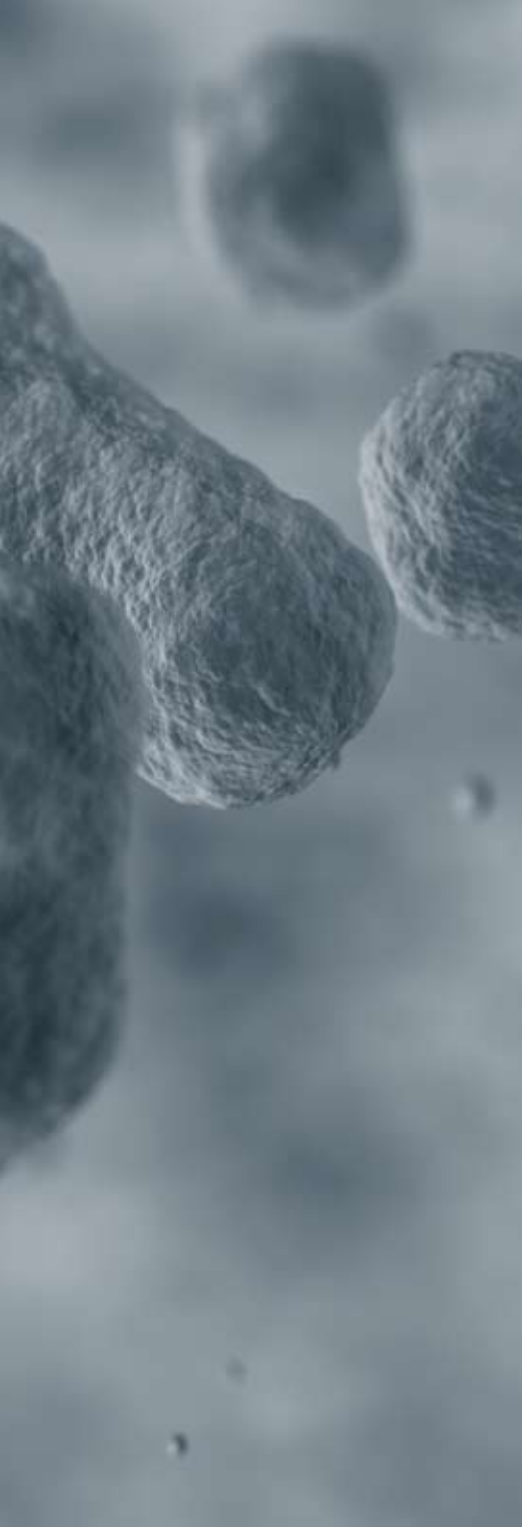
Printed in the Philippines.

Contents

We would like to acknowledge the valuable contributions of many WHO and TDR staff including May Chu, Jane Cunningham, Matthew Lim, Nahoko Shindo, Wenqing Zhang and technical inputs from external reviewers, Fred Hayden, Lance Jennings and Tim Uyeki.

To request copies and address queries, please contact:

Dr Jane Cunningham, WHO/TDR
E-mail: cunninghamj@who.int



Background

Seasonal and pandemic influenza pose ongoing risks to global human public health. The emergence of the novel influenza A(H1N1) 2009 virus in the human population has led to a global influenza pandemic. Influenza diagnostic tests which aid in case management and outbreak control and permit monitoring of disease spread and viral evolution are critical to patient care and public health efforts. As a result, laboratory testing strategies must be developed and optimized in each country. While sophisticated influenza tests are available in specialized laboratories their capacity may be overwhelmed during a pandemic. Point-of-care tests (POCT) or rapid influenza diagnostic tests (RIDT) are available and can be used in remote settings and in physician's offices or clinics without laboratory services. They do not require laboratory equipment and can be performed and interpreted by health-care providers within 5-15 minutes.

This user's guide provides general information on RIDTs and possible applications according to the availability of local epidemiology and influenza laboratory services. In particular, it highlights the limitations of these tests. The aim of this document is to ensure appropriate use and interpretation of the results of RIDTs combined with guidance on good quality planning prior to test deployment so that case management and disease control efforts are optimized.

I. What is influenza?

Influenza is an acute respiratory disease caused by infection with influenza type A and influenza type B viruses. All influenza A viruses are subgrouped on the basis of their surface haemagglutinin (H) and neuraminidase (N) glycoproteins, of which there are 16 known types of H and 9 types of N. The current subtypes of influenza A viruses circulating most widely among humans are A (H1N1) and A(H3N2). Aquatic birds are the primary reservoir for influenza A viruses but they also circulate among other animals including pigs, horses and seals. Humans are the primary reservoir for influenza B viruses.

In humans, both influenza A and B viruses result in seasonal epidemics with winter peaks in temperate zones and year-round circulation in the tropics with rainy season and dry season peaks in activity. Both viruses continually evolve through the accumulation of mutations leading to antigenic drift of the H and N glycoproteins. Influenza A viruses can also evolve through additional mechanisms that allow the emergence of a novel influenza A virus. These can potentially cause a rare influenza pandemic if the novel virus spreads in a sustained manner through largely susceptible populations.

The spectrum of influenza virus infection is wide, ranging from non-febrile, mild upper respiratory tract illness, febrile influenza-like illness (ILI) to severe or even fatal complications. The greatest burden